

This listing of claims replaces all prior versions and listings of claims in this application.

LISTING OF CLAIMS:

Claim 1 (withdrawn): Cellulose fibers having a median desorption pressure, as determined in a capillary absorption-desorption cycle, of 15 cm or less.

Claim 2 (withdrawn): The cellulose fibers of claim 1, wherein the cellulose fibers have a median desorption pressure of 14 cm or less.

Claim 3 (withdrawn): The cellulose fibers of claim 1, wherein wherein the cellulose fibers have a median desorption pressure of 13 cm or less.

Claim 4 (withdrawn): The cellulose fibers of claim 1, wherein the cellulose fibers have a median desorption pressure of 12 cm or less.

Claim 5 (withdrawn): The cellulose fibers of claim 1, wherein the cellulose fibers have a water retention value of 45 percent or less.

Claim 6 (withdrawn): The cellulose fibers of claim 5, wherein the cellulose fibers have a water retention value of 38 percent or less.

Claim 7 (withdrawn): The cellulose fibers of claim 6, wherein the cellulose fibers have a water retention value of 30 percent or less.

Claim 8 (original): The cellulose fibers of claim 1, wherein the cellulose fibers are crosslinked.

Claim 9 (withdrawn): An acquisition and distribution layer comprising the cellulose fibers of claim 1.

Claim 10 (withdrawn): An acquisition layer comprising the cellulose fibers of claim 1.

Claim 11 (withdrawn): A distribution layer comprising the cellulose fibers of claim 1.

Claim 12 (withdrawn): An absorbent structure comprising:

- (a) a top layer comprising cellulose fibers having a median desorption pressure, as determined in a capillary absorption-desorption cycle, of 15 cm or less; and
- (b) a bottom layer comprising SAP particles, the second layer being in fluid communication with the first layer.

Claim 13 (withdrawn): The absorbent structure of claim 12, wherein the cellulose fibers have a median desorption pressure of 14 cm or less.

Claim 14 (withdrawn): The absorbent structure of claim 13, wherein the cellulose fibers have a median desorption pressure of 13 cm or less.

Claim 15 (withdrawn): The absorbent structure of claim 14, wherein the cellulose fibers have a median desorption pressure of 12 cm or less.

Claim 16 (withdrawn): The absorbent structure of claim 12, wherein the cellulose fibers have a water retention value of 45 percent or less.

Claim 17 (withdrawn): The absorbent structure of claim 16, wherein the cellulose fibers have a water retention value of 38 percent or less.

Claim 18 (withdrawn): The absorbent structure of claim 17, wherein the cellulose fibers have a water retention value of 30 percent or less.

Claim 19 (withdrawn): An absorbent structure comprising the cellulose fibers of claim 1.

Claim 20 (withdrawn): An absorbent structure comprising the acquisition and distribution layer of claim 9.

Claim 21 (withdrawn): An absorbent structure comprising the acquisition layer of claim 10.

Claim 22 (withdrawn): An absorbent structure comprising the distribution layer of claim 11.

Claim 23 (withdrawn): A method for preparing cellulose fibers comprising the steps of:

- (a) refining cellulose fibers to a freeness of from about 300 to about 700 ml CSF; and
- (b) crosslinking the refined cellulose fibers.

Claim 24 (withdrawn): The method of claim 23, wherein the cellulose fibers to be refined in step (a) are wet lap.

Claim 25 (withdrawn): The method of claim 23, wherein step (a) comprises refining the cellulose fibers to a freeness of from about 500 to about 700 ml CSF.

Claim 26 (withdrawn): The method of claim 25, wherein step (a) comprises refining the cellulose fibers to a freeness of from about 650 to about 700 ml CSF.

Claim 27 (withdrawn): The method of claim 23, wherein step (b) comprises:

- (i) mixing the refined cellulose fibers with a crosslinking agent; and
- (ii) curing the cellulose fibers in the mixture.

Claim 28 (withdrawn): The method of claim 23, wherein step (b) comprises:

- (i) mixing the refined cellulose fibers with a crosslinking agent;

- (ii) fluffing the cellulose fibers in the mixture; and
- (iii) curing the cellulose fibers in the mixture.

Claim 29 (withdrawn): The method of claim 28, wherein step (b)(iii) comprises drying the cellulose fibers and curing the dried cellulose fibers.

Claim 30 (withdrawn): The method of claim 28, wherein curing is performed at a temperature ranging from about 150 to about 175° C.

Claim 31 (withdrawn): Cellulose fibers prepared by the method of claim 23.

Claim 32 (withdrawn): A method of preparing an absorbent structure comprising

- (a) preparing cellulose fibers by the method of claim 23; and
- (b) incorporating the cellulose fibers into an absorbent structure.

Claim 33 (original): Cellulose fibers crosslinked with at least one crosslinking agent selected from saturated dicarboxylic acids, aromatic dicarboxylic acids, cycloalkyl dicarboxylic acids, bifunctional monocarboxylic acids, and amine carboxylic acids and having a median desorption pressure as measured in a capillary absorption-desorption cycle of 25 cm or less.

Claim 34 (original): The cellulose fibers of claim 33, wherein the saturated dicarboxylic acid has 2 to 8 carbon atoms.

Claim 35 (original): The cellulose fibers of claim 34, wherein the saturated dicarboxylic acid has 2 to 6 carbon atoms.

Claim 36 (original): The cellulose fibers of claim 35, wherein the saturated dicarboxylic acid has 2 to 4 carbon atoms.

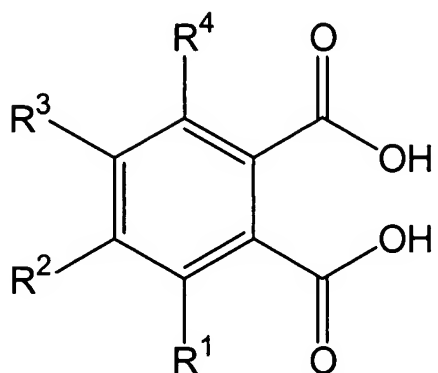
Claim 37 (original): The cellulose fibers of claim 34, wherein the saturated dicarboxylic acid is selected from oxalic acid, malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, suberic acid, and any combination of any of the foregoing.

Claim 38 (withdrawn): The cellulose fibers of claim 33, wherein the saturated dicarboxylic acid is a saturated hydroxy carboxylic acid.

Claim 39 (withdrawn): The cellulose fibers of claim 38, wherein the saturated hydroxy carboxylic acid has 2 to 8 carbon atoms.

Claim 40 (withdrawn): The cellulose fibers of claim 39, wherein the hydroxy saturated dicarboxylic acid is selected from glycolic acid, tartaric acid, malic acid, saccharic acid, mucic acid, and any combination of any of the foregoing.

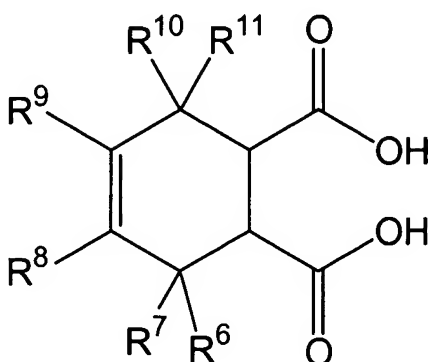
Claim 41 (withdrawn): The cellulose fibers of claim 33, wherein the aromatic dicarboxylic acid has the formula



wherein R¹, R², R³, and R⁴ independently are hydrogen, hydroxy, C₁-C₄ alkoxy, C₁-C₄ alkyl, amino, halogen, or nitro.

Claim 42 (withdrawn): The cellulose fibers of claim 41, wherein the aromatic dicarboxylic acid is phthalic acid.

Claim 43 (withdrawn): The cellulose fibers of claim 33, wherein the cycloalkyl dicarboxylic acid has the formula



wherein

R⁶, R⁷, R¹⁰, and R¹¹ are independently hydrogen, hydroxy, halogen, C₁-C₄ alkoxy, C₁-C₄ alkyl, amino, or nitro; and

R⁸ and R⁹ are independently hydrogen, halogen, C₁-C₄ alkoxy, or C₁-C₄ alkyl.

Claim 44 (withdrawn): The cellulose fibers of claim 43, wherein the cycloalkyl dicarboxylic acid is 1,2,5,6-tetrahydrophthalic acid.

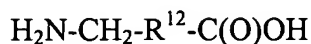
Claim 45 (withdrawn): The cellulose fibers of claim 33, wherein the bifunctional monocarboxylic acid is selected from salts of a haloacetate, hydroxy monocarboxylic acids, acid derivatives of hydroxy monocarboxylic acids, and any combination of any of the foregoing.

Claim 46 (withdrawn): The cellulose fibers of claim 45, wherein the salt of a haloacetate is sodium chloroacetate.

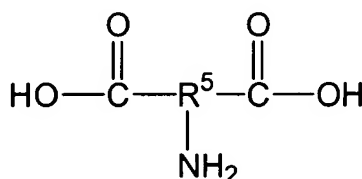
Claim 47 (withdrawn): The cellulose fibers of claim 33, wherein the amine carboxylic acid is an amino acid.

$$\text{H}_2\text{N}-\text{CH}_2-\text{R}^{12}-\text{C}(\text{O})\text{OH}$$

wherein R^{12} is a bond, $\text{C}_1\text{-C}_{12}$ alkyl, or $\text{C}_1\text{-C}_{12}$ alkyl substituted with one or more of carboxyl, hydroxy, $\text{C}_1\text{-C}_4$ alkoxy, $\text{C}_1\text{-C}_4$ alkyl, amino, and nitro.



Claim 49 (withdrawn): The cellulose fibers of claim 47, wherein the amino acid



Claim 50 (withdrawn): The cellulose fibers of claim 49, wherein R⁵ is a C₂-C₄ alkyl.

Claim 51 (withdrawn): The cellulose fibers of claim 47, wherein the amino acid is selected from aspartic acid, glutamic acid, and any combination of any of the foregoing.

Claim 52 (withdrawn): The cellulose fibers of claim 33, wherein the amine carboxylic acid is ethylenedinitrilotetraacetic acid.

Claim 53 (original): The cellulose fibers of claim 33, wherein the cellulose fibers have been crosslinked with from about 5 to about 21 mole percent of crosslinking agent, calculated on a cellulose anhydroglucose molar basis.

Claim 54 (original): The cellulose fibers of claim 33, wherein the cellulose fibers have been crosslinked in the presence of a crosslinking facilitator.

Claim 55 (original): The cellulose fibers of claim 54, wherein the crosslinking facilitator and the crosslinking agent are different.

Claim 56 (original): The cellulose fibers of claim 54, wherein the crosslinking facilitator is oxalic acid.

Claim 57 (original): The cellulose fibers of claim 54, wherein the cellulose fibers have been crosslinked in the presence of from about 1.8 to about 9 mole percent of crosslinking facilitator, calculated on a cellulose anhydroglucose molar basis.

Claim 58 (original): The cellulose fibers of claim 54, wherein the cellulose fibers have been crosslinked with from about 0.5 to about 40 mole percent of crosslinking agent and crosslinking facilitator, calculated on a cellulose anhydroglucose molar basis.

Claim 59 (original): The cellulose fibers of claim 58, wherein the cellulose fibers have been crosslinked with from about 1 to about 30 mole percent of crosslinking agent and crosslinking facilitator, calculated on a cellulose anhydroglucose molar basis.

Claim 60 (original): The cellulose fibers of claim 33, wherein the cellulose fibers are derived from wood pulp.

Claim 61 (original): The cellulose fibers of claim 33, wherein the cellulose fibers have been refined prior to crosslinking.

Claim 62 (original): The cellulose fibers of claim 61, wherein the cellulose fibers have been refined to a freeness of from about 300 to about 700 ml CSF prior to crosslinking.

Claim 63 (original): The cellulose fibers of claim 62, wherein the cellulose fibers have been refined to a freeness of from about 500 to about 700 ml CSF prior to crosslinking.

Claim 64 (original): The cellulose fibers of claim 63, wherein the cellulose fibers have been refined to a freeness of from about 650 to about 700 ml CSF prior to crosslinking.

Claim 65 (original): The cellulose fibers of claim 33, wherein the cellulose fibers have been cured at a temperature of from about 105 to about 225° C.

Claim 66 (original): The cellulose fibers of claim 65, wherein the cellulose fibers have been cured at a temperature of from about 150 to about 190° C.

Claim 67 (original): The cellulose fibers of claim 66, wherein the cellulose fibers have been cured at a temperature of from about 160 to about 175° C.

Claim 68 (original): The cellulose fibers of claim 33, wherein the cellulose fibers have been cured in the presence of a reducing agent.

Claim 69 (original): The cellulose fibers of claim 68, wherein the reducing agent is a hypophosphite.

Claim 70 (original): The cellulose fibers of claim 69, wherein the reducing agent is sodium hypophosphite.

Claim 71 (original): The cellulose fibers of claim 33, wherein the water retention value of the cellulose fibers is 50 percent or less.

Claim 72 (original): The cellulose fibers of claim 71, wherein the water retention value of the cellulose fibers is 45 percent or less.

Claim 73 (original): The cellulose fibers of claim 72, wherein the water retention value of the cellulose fibers is 38 percent or less.

Claim 74 (original): The cellulose fibers of claim 73, wherein the water retention value of the cellulose fibers is 30 percent or less.

Claim 75 (original): The cellulose fibers of claim 33, wherein the median desorption pressure of the cellulose fibers as measured in a capillary absorption-desorption cycle is 20 cm or less.

Claim 76 (original): The cellulose fibers of claim 75, wherein the median desorption pressure of the cellulose fibers as measured in a capillary absorption-desorption cycle is 18 cm or less.

Claim 77 (original): The cellulose fibers of claim 76, wherein the median desorption pressure of the cellulose fibers as measured in a capillary absorption-desorption cycle is 15 cm or less.

Claim 78 (original): The cellulose fibers of claim 33, wherein the crosslinking is substantially reversible.

Claim 79 (original): The cellulose fibers of claim 33, wherein the crosslinking agent is oxalic acid and the crosslinking is substantially reversible.

Claim 80 (withdrawn): Uncrosslinked cellulose fibers prepared by uncrosslinking the cellulose fibers of claim 33.

Claim 81 (withdrawn): The uncrosslinked cellulose fibers of claim 80, wherein the crosslinking agent contains 4 carbon atoms or less.

Claim 82 (withdrawn): The uncrosslinked cellulose fibers of claim 81, wherein the crosslinking agent is oxalic acid.

Claim 83 (withdrawn): The uncrosslinked cellulose fibers of claim 81, wherein the crosslinking agent is sodium chloroacetate.

Claim 84 (withdrawn): The uncrosslinked cellulose fibers of claim 80, wherein the uncrosslinking step comprises soaking the cellulose fibers in water.

Claim 85 (withdrawn): The uncrosslinked cellulose fibers of claim 84, wherein the uncrosslinking step comprises soaking the cellulose fibers in water for from about 0.5 to about 4 hours.

Claim 86 (withdrawn): A sheet comprising the uncrosslinked cellulose fibers of claim 80.

Claim 87 (withdrawn): An absorbent structure comprising the fibers of claim 33.

Claim 88 (withdrawn): A method of preparing crosslinked cellulose fibers comprising intrafiber crosslinking the cellulose fibers with at least one saturated dicarboxylic acid, aromatic dicarboxylic acid, cycloalkyl dicarboxylic acid, bifunctional monocarboxylic acid, or amine carboxylic acid.

Claim 89 (withdrawn): The method of claim 88, wherein the saturated dicarboxylic acid has 2 to 8 carbon atoms.

Claim 90 (withdrawn): The method of claim 89, wherein the saturated dicarboxylic acid has 2 to 6 atoms.

Claim 91 (withdrawn): The method of claim 90, wherein the saturated dicarboxylic acid has 2 to 4 carbon atoms.

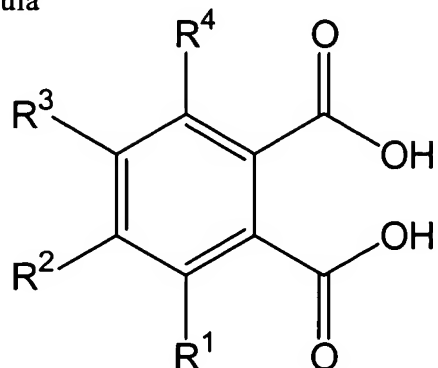
Claim 92 (withdrawn): The method of claim 89, wherein the saturated dicarboxylic acid is selected from oxalic acid, malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, suberic acid, and any combination of any of the foregoing.

Claim 93 (withdrawn): The method of claim 88, wherein the saturated dicarboxylic acid is a saturated hydroxy carboxylic acid.

Claim 94 (withdrawn): The method of claim 93, wherein the saturated hydroxy carboxylic acid has 2 to 8 carbon atoms.

Claim 95 (withdrawn): The method of claim 94, wherein the C₂-C₈ hydroxy saturated dicarboxylic acid is selected from glycolic acid, tartaric acid, malic acid, saccharic acid, mucic acid, and any combination of any of the foregoing.

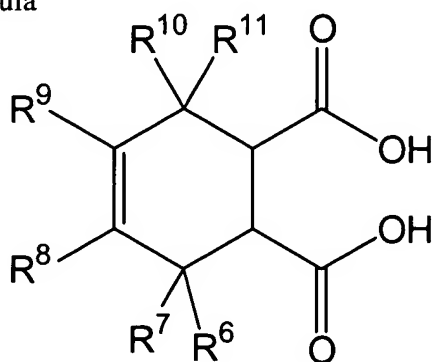
Claim 96 (withdrawn): The method of claim 88, wherein the aromatic dicarboxylic acid has the formula



wherein R¹, R², R³, and R⁴ independently are hydrogen, hydroxy, C₁-C₄ alkoxy, C₁-C₄ alkyl, amino, halogen, or nitro.

Claim 97 (withdrawn): The method of claim 96, wherein the aromatic dicarboxylic acid is phthalic acid.

Claim 98 (withdrawn): The method of claim 88, wherein the cycloalkyl dicarboxylic acid has the formula



wherein

R⁶, R⁷, R¹⁰, and R¹¹ are independently hydrogen, hydroxy, halogen, C₁-C₄ alkoxy, C₁-C₄ alkyl, amino, or nitro; and

R⁸ and R⁹ are independently hydrogen, halogen, C₁-C₄ alkoxy, or C₁-C₄ alkyl.

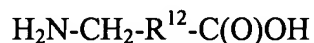
Claim 99 (withdrawn): The method of claim 98, wherein the cycloalkyl dicarboxylic acid is 1,2,5,6-tetrahydrophthalic acid.

Claim 100 (withdrawn): The method of claim 88, wherein the bifunctional monocarboxylic acid is selected from salts of a haloacetate, hydroxy monocarboxylic acids, acid derivatives of hydroxy monocarboxylic acids, and any combination of any of the foregoing.

Claim 101 (withdrawn): The method of claim 100, wherein the salt of a haloacetate is sodium chloroacetate.

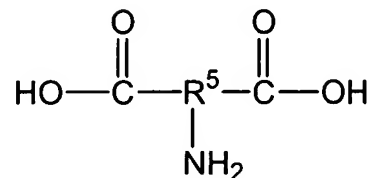
Claim 102 (withdrawn): The method of claim 88, wherein the amine carboxylic acid is an amino acid.

Claim 103 (withdrawn): The method of claim 102, wherein the amino acid has the formula



wherein R^{12} is a bond, $\text{C}_1\text{-C}_{12}$ alkyl, or $\text{C}_1\text{-C}_{12}$ alkyl substituted with one or more of carboxyl, hydroxy, $\text{C}_1\text{-C}_4$ alkoxy, $\text{C}_1\text{-C}_4$ alkyl, amino, and nitro.

Claim 104 (withdrawn): The method of claim 102, wherein the amino acid has the formula



where R⁵ is a linear or branched C₁-C₈ alkyl.

Claim 105 (withdrawn): The method of claim 104, wherein R⁵ is a C₂-C₄ alkyl.

Claim 106 (withdrawn): The method of claim 102, wherein the amino acid is selected from aspartic acid, glutamic acid, and any combination of any of the foregoing.

Claim 107 (withdrawn): The method of claim 88, wherein the amine carboxylic acid is ethylenedinitrilotetraacetic acid.

Claim 108 (withdrawn): The method of claim 88, wherein the mole percent of crosslinking agent ranges from about 5 to about 21 mole percent, calculated on a cellulose anhydroglucose molar basis.

Claim 109 (withdrawn): The method of claim 88, wherein the crosslinking step is performed in the presence of a crosslinking facilitator.

Claim 110 (withdrawn): The method of claim 109, wherein the crosslinking agent is different than the crosslinking facilitator.

Claim 111 (withdrawn): The method of claim 109, wherein the crosslinking facilitator is oxalic acid.

Claim 112 (withdrawn): The method of claim 109, wherein the mole percent of crosslinking facilitator ranges from about 1.8 to about 9 mole percent, calculated on a cellulose anhydroglucose molar basis.

Claim 113 (withdrawn): The method of claim 109, wherein the mole percent of crosslinking agent and crosslinking facilitator ranges from about 0.05 to about 40, calculated on a cellulose anhydroglucose molar basis.

Claim 114 (withdrawn): The method of claim 113, wherein the mole percent of crosslinking agent and crosslinking facilitator ranges from about 1 to about 30, calculated on a cellulose anhydroglucose molar basis.

Claim 115 (withdrawn): The method of claim 88, wherein the crosslinking step comprises:

- (i) mixing the cellulose fibers with the crosslinking agent; and
- (ii) curing the cellulose fibers in the mixture.

Claim 116 (withdrawn): The method of claim 115, wherein the crosslinking step comprises:

- (i) mixing the cellulose fibers with the crosslinking agent;

- (ii) fluffing the cellulose fibers in the mixture; and
- (iii) curing the cellulose fibers in the mixture.

Claim 117 (withdrawn): The method of claim 116, wherein step (iii) comprises drying the cellulose fibers and curing the dried cellulose fibers.

Claim 118 (withdrawn): The method of claim 115, wherein curing is performed at a temperature ranging from about 150 to about 175° C.

Claim 119 (withdrawn): The cellulose fibers of claim 88, wherein the fibers are crosslinked in the presence of a reducing agent.

Claim 120 (withdrawn): The cellulose fibers of claim 119, wherein the reducing agent is a hypophosphite.

Claim 121 (withdrawn): The cellulose fibers of claim 120, wherein the reducing agent is sodium hypophosphite.

Claim 122 (withdrawn): The method of claim 88, wherein the cellulose fibers are refined prior to the crosslinking step.

Claim 123 (withdrawn): The method of claim 122, wherein the cellulose fibers are refined to a freeness of from about 500 to about 700 ml CSF.

Claim 124 (withdrawn): The method of claim 123, wherein the cellulose fibers are refined to a freeness of from about 650 to about 700 ml CSF.

Claim 125 (withdrawn): Cellulose fibers prepared by the method of claim 88.

Claim 126 (withdrawn): A method of preparing uncrosslinked fibers comprising the steps of intrafiber crosslinking cellulose fibers with at least one saturated dicarboxylic acid, aromatic dicarboxylic acid, cycloalkyl dicarboxylic acid, bifunctional monocarboxylic acid, or amine carboxylic acid; and uncrosslinking the crosslinked cellulose fibers.

Claim 127 (withdrawn): The method of claim 126, wherein the crosslinking agent contains 4 carbon atoms or less.

Claim 128 (withdrawn): The method of claim 127, wherein the crosslinking agent is oxalic acid.

Claim 129 (withdrawn): The method of claim 127, wherein the crosslinking agent is sodium chloroacetate.

Claim 130 (withdrawn): The method of claim 126, wherein the uncrosslinking step comprises soaking the crosslinked cellulose fibers in water.

Claim 131 (withdrawn): The method of claim 130, wherein the uncrosslinking step comprises soaking the crosslinked cellulose fibers in water for from about 0.5 to about 4 hours.

Claim 132 (withdrawn): A method of preparing a sheet of uncrosslinked cellulose fibers comprising the steps of preparing uncrosslinked cellulose fibers by the method of claim 126 and forming the uncrosslinked cellulose fibers into a sheet.

Claim 133 (withdrawn): A method of preparing crosslinked cellulose fibers comprising the steps of:

- (a) preparing uncrosslinked cellulose fibers by the method of claim 126; and
- (b) crosslinking the cellulose fibers.

Claim 134 (withdrawn): A method of preparing an absorbent structure comprising

- (a) preparing cellulose fibers by the method of claim 88; and
- (b) incorporating the cellulose fibers into an absorbent structure.

Claim 135 (withdrawn): An absorbent core comprising superabsorbent polymer particles and reversible crosslinked cellulose fibers.

Claim 136 (withdrawn): The absorbent core of claim 135, wherein the reversible crosslinked cellulose fibers are crosslinked with oxalic acid, sodium chloroacetate, or a mixture thereof.

Claim 137 (withdrawn): The absorbent core of claim 136, wherein the reversible crosslinked cellulose fibers are crosslinked with oxalic acid.

Claim 138 (withdrawn): The absorbent core of claim 135, wherein the absorbent core comprises from about 30 to about 70% by weight of superabsorbent particles and from about 70 to about 30% by weight of reversible crosslinked fibers, based on 100% total weight of the absorbent core.

Claim 139 (new): The cellulose fibers of claim 33, wherein the saturated dicarboxylic acid is oxalic acid.